Columbia College Herbaria.[1]

N. L. BRITTON.

The botanical collections of Columbia College have been accumulating since about the year 1820, a few specimens indeed bearing still earlier dates. These oldest were among the first plants collected by Dr. Torrey, and were the nucleus of the Torrey herbarium. During Dr. Torrey's connection with the College, from 1860 to his death, in 1873, specimens accumulated very rapidly, but were nearly all classified by him and mounted under his direction. In 1874 the very extensive collection of the late Professor Meisner, of Basle, Switzerland, specially rich in South American, Asiatic and Australian species, and supplementing the Torrey herbarium to a remarkable degree, together with the herbarium of Dr. A. W. Chapman, of Florida, containing nearly all species described in the "Flora of the Southern United States," were purchased by Mr. John J. Crooke, of New York, and presented to the college. At this time and until about three years ago the collections were under the care of Mr. P. V. LeRoy, who acted as curator. Nearly all his time was spent in mounting the Chapman and Meisner herbaria, and other specimens obtained through purchase or exchange. About two years since the personal bryological collection of the late Mr. C. F. Austin was purchased. It contains all of Austin's types of mosses and some of his Hepaticæ, though unfortunately the bulk of his hepatological material was allowed to leave the country.

Until the autumn of 1878 the college herbarium was located in a building on Madison avenue, which was occupied also by several of the professors. This was at that time torn down and replaced by a new building erected for the department of arts, and the botanical collections were transferred to another old building, where they remained until last autumn. Neither of these ancient edifices were fire-proof. Indeed, it was well known that nothing could save them in case of fire, and the utmost anxiety was felt by those who had the preservation of the vast botanical collections at heart.

On the completion, last year, of the new library building, one of its rooms was assigned to the botanical department. Its furniture was completed in November last, and the task

[1]Read before the Botanical Club of the A. A. A. S., Buffalo meeting, 1886.

of transferring the herbaria was at once begun, and is now practically completed, though much work in arranging and distributing specimens is yet to be done, and for the first time these invaluable scientific collections are secure. It is too soon to say that this disposition will be final. It isolates the plants from the other natural history collections in the museum building on Fourth avenue, and when this shall have been extended it may be deemed wise to deposit the herbaria in the extension, and thus bring them close to the museums of geology and palæontology containing Professor Newberry's immense collections in palæo-botany. The present disposition makes them absolutely secure from fire, which is a source of great satisfaction.

The room now devoted to the botanical collections is sixty feet long, twenty-two feet wide, and sixteen feet in height. It is lighted by day through large, high windows at each end, by the incandescent electric light during evenings and gloomy weather, being an expansion of the system used throughout the library and law school. The herbarium may be consulted till 10 o'clock every evening throughout the year excepting Sundays. The collections, comprising the Torrey, Meisner, and Chapman herbaria, Austin's mosses, and a mass of miscellaneous material, make in all about 175,000 mounted sheets, representing not less than 70,000 species, of which some 6,000 are cryptogams. To accommodate them are 174 running feet of cases, seven feet high, so that any specimen may be reached from the floor without a step-ladder. The cases are of polished oak, handsomely finished and varnished. Each has two plate glass doors opening the entire height, secured by the Jenks' lock and fitting very closely to exclude dust. There are forty-eight compartments to a case, each six inches in height in the clear, separated vertically and laterally by one-half inch oak boards. This height gives the greatest economy of room consistent with stacking the specimens without fear of damaging them. In all there are 1,728 compartments. I find that on the average each will comfortably accommodate about 150 mounted sheets, including genus and species covers, and the present cases on this estimate provide space for about 260,000 sheets, and by crowding, about 300,000. Should the herbarium remain in this room and outgrow this number, there is space in the upper part of the room for an equal number of cases, constructed on those now in place, which are strong enough for this arrangement. In the botanical arrangement, the sequence of orders and genera of Phanero-

gamia strictly follows that of Bentham and Hooker's "Genera Plantarum." The arrangement of species is geographical, and all the American ones are put in special genus and species covers and placed alphabetically. If there are specimens of plants native or naturalized in America, from other regions, they are put in the same cover as the American specimens for comparison. American genera of more than four species are given species covers and the genus cover dispensed with; genera of four or a less number of species are placed in a single genus cover. It may be objected that the alphabetical arrangement is unscientific, as it destroys natural relationships, but the advantage of easy reference overbalances this disadvantage, and while studying a genus it is a small undertaking to group the species temporarily in any desired order. The arrangement of genera of the cryptogamous groups is also alphabetical, and the American species are similarly distributed. Each second or third compartment is supplied with a pasteboard cover, hinged so as to drop down over the exposed ends of the sheets. To this is attached the name of the order, printed in large, black letters, and the names of genera to be found in the compartments. As the fronts of the cases are glass, it may be seen exactly where any genus is located before opening the door. After much hesitation it has been determined to unite all the separate collections into a single great botanical series. This brings all the specimens of a kind together, and appears to be the most advantageous arrangement. As it is important, however, to know the origin of each specimen, each sheet is appropriately stamped, and the Torrey herbarium, in particular, is carefully identified.

The botanical library is placed around the walls at one end of the room; it comprises about 2,000 bound volumes and an equal number of pamphlets, and is rapidly increasing in bulk. Books on general science, such as the *American Journal of Science*, etc., are on the main college library floor, but can be obtained in five minutes through the aid of a telephone, a page and an elevator. Woods, fruits and miscellaneous botanical material, microscopical preparations, etc., are placed in drawers or in wall cases. Large working tables in each end of the room complete the equipment.